C2710-1

$1.25 a copy; $52 a year

Thursday, November 15, 1984

Advertising Age

The International Newspaper of Marketing © Entire contents copyright 1984 by Crain Communications Inc. All rights reserved.

Midweek News Summary

E. & J. Gallo Winery is expected to introduce its first wine cooler, Bartles & James, in several test markets early next year. *See Page 2.*

Lotus Development Corp. is using two of the biggest movers and shakers behind Diet Coke's soaring success to market a new software program as a mass-appeal consumer item. *See Page 2.*

Ore-Ida Foods sits firmly enthroned at the top of the frozen potato market, but it wasn't always that way. *See Page 3.*

Time Inc. has signed IBM Corp. as the single sponsor of *Home Office*, a publication it plans to test next spring. *See Page 3.*

An American Dairy Assn. campaign is employing bolder, more specific health claims for foods, a key feature in Kellogg's controversial new campaign for All-Bran cereal. *See Page 3.*

A battle is shaping up between the "class" and "trash" tv miniseries. In round one, tv's biggest advertiser and its quality program were forced to head for cover. *See Page 3.*

The post-Franco Spanish government is embroiled in a dispute with the Roman Catholic church and the advertising industry over a commercial banned from the state-run tv network. *See Page 3.*

The success of Development Dimensions International, which will serve its one-millionth customer this year, illustrates the boom in the training industry. *See Page 32.*

The Washington Post spins off another weekly Jan. 9 when a two-page health insert in its "Style" section blossoms into a 32-page tabloid that already has an advertising base among health companies usually committed to trade publications. *See Page 36.*

DIRECT MARKETING

A French mail-order catalog marketer is leading the world in the use of the latest marketing technology—interactive video. *See Page 8.*

Adelphi University is reacting to the shrinking reservoir of potential college students by using a direct-response campaign to shore up its enrollment. *See Page 9.*

High Life goes to JWT

B&S keeps media buys

NEW YORK—J. Walter Thompson USA this week was handed one of marketing's biggest creative challenges—the opportunity to help rescue Miller High Life beer.

Miller Brewing named JWT to succeed Backer & Spielvogel for creative responsibility on the $50 million Miller High Life account. The assignment was announced Nov. 12. Thompson reportedly was the last of the four agencies to give its final presentation last week.

Leo Burnett USA, Chicago, was said to have had the first shot, making its presentation to Miller Brewing executives Nov. 2. The New York offices of Jordan, Case & McGrath; N W Ayer, and JWT followed, in that order, Nov. 9.

Backer & Spielvogel hardly has been left out in the cold. A Miller spokesman said that agency will continue to handle media buying for all Miller brands, including High Life, which have total billings of about $150 million.

It also remains agency for Miller's Lite, Lowenbrau, Meister Brau, Milwaukee's Best and Magnum Malt Liquor brands. Creative responsibility for low-alcohol Sharp's LA earlier was given to Burnett, and Chiat/Day here has been assigned creative for Plank Road, a new premium brand now in test.

A source at Miller parent Philip Morris Inc. said Backer & Spielvogel had been told previously that it was no longer being considered for the High Life creative assignment. However, a source at Backer &

(Continued on Page 34)

ANA tunes in to tv problems

Panel tackles 'light' viewer

SCOTTSDALE, ARIZ.—The word "light," a mainstay in national advertisers' product vocabulary for more than a decade, now is being applied to an elusive potential customer known as the light tv viewer.

But whether network tv should be the medium to use in trying to reach light tv viewers was one of several issues examined by a panel at the Assn. of National Advertisers' 75th annual meeting here. The panel also addressed itself to the problem of double-digit increases in network tv costs, clutter and alternative media options.

William Claggett, vp-director of advertising and marketing services, Ralston Purina Co., St. Louis, noted that 40% of Ralston's sales come from the light tv-viewing segment. Therefore, Mr. Claggett believes the three major tv networks should consider network cost reductions in light of the diminishing tv audience.

While Mr. Claggett admitted that 80% of Ralston's budget remains committed to network tv, he said "we have to keep massaging it [network tv] to get the maximum out of it." He also said the light tv-viewing problem has forced Ralston to become more intelligent in the programing that it buys. Through buys on miniseries and programing such as CBS-TV's "60 Minutes," he said, light viewers are being reached, although Ralston is "paying a premium to reach them."

Lawrence Lamattina, exec vp-media and network programing, SSC&B:Lintas Worldwide, New York, made the point that "advertisers are kidding themselves" in considering networks a "specialized medium." He noted that buyers of network time are looking for "big numbers and mass coverage."

On the issue of reducing network tv's escalating prices, Mr. La-

(Continued on Page 4)

Photo by Mary Hershey

The incoming meet the outgoing at the Assn. of National Advertisers annual meeting: (From l.) Herbert Baum, newly elected ANA vice-chairman and corporate vp-marketing, Campbell Soup Co.; Karen Baum; Spencer Boise, new ANA chairman and vp-corporate affairs, Mattel Inc.; Marty Boise; Nancy Goldstein, and Robert Goldstein, outgoing ANA chairman and vp-advertising, Procter & Gamble.

Des Moines buy ripples at Cowles

By WILLIAM GLOEDE

The surprise attempt by executives of the Des Moines Register & Tribune Co. and Dow Jones & Co., New York, to buy the Iowa company from the Cowles family has led to infighting among board members and major stockholders.

The developments have raised prospects that an outside media company may have a shot at acquiring not only the Des Moines company but also the Minneapolis-based Cowles Media Co.

Observers believe the five largest U.S. newspaper publishers each will make bids. The Washington Post Co. has in the past expressed an interest in a buyout.

One of the major players in the

(Continued on Page 34)

Presstime

Court forbids some ads for Advil

NEW YORK—A U.S. district court here has banned American Home Products' Whitehall Laboratories division from using previously discontinued ads for Advil, its nonprescription ibuprofen product. The court also said that Whitehall may continue to use ads now running. Former advertising, via Young & Rubicam, used the sentence "It's so effective that doctors have already prescribed it over 130 million times" and showed Advil as an orange-colored tablet, rather than its true color, brown. Upjohn Co., marketer of Motrin, an orange-colored prescription ibuprofen tablet, sought an injunction against all of Whitehall's Advil ads as deceptive and misleading.

Advance acquires 17% stake in New Yorker

NEW YORK—Advance Publications and its chairman, S.I. Newhouse Jr., will acquire 17% of the stock of The New Yorker Magazine Inc. for what Mr. Newhouse said are investment purposes. The stock is to be acquired from PaineWebber Group, which recently boosted its stake in the company (AA, Oct. 15), and from Philip Messinger, a private investor. New Yorker Inc. president J. Kennard Bosee said the company had been aware of Advance's move for a couple of days and that Mr. Newhouse "has told us there are no plans to seek control or influence management."

(Continued on Page 4)

NEWSPAPER

Dairy ads join focus

AA
DC2001#CONGLI FMJF M
CONGRESSIONAL INFO SERVICE
SRI ACQUISITIONS
4520 EAST-WEST HWY #800
WASHINGTON DC 20014

Gallo ready to squeeze into wine cooler market

By RUTH STROUD

E. & J. Gallo Winery's long-rumored entry into the fiercely competitive wine cooler category apparently is at hand.

The Modesto, Cal.-based winery is expected to introduce its cooler, Bartles & James, in several test markets early next year, sources said. From a first-hand description, the product seems aimed at a more sophisticated consumer than its successful predecessors, California Cooler, Canandaigua (Sun Country cooler) and Wine Group (20/20 Wine Cooler).

Bartles & James will come in green, 12-oz. bottles resembling those used for Michelob beer, with a white label and gold lettering.

Round of tests slated

One source said the cooler would be produced in limited quantities in the next few weeks and tested in several unidentified markets. Further information on advertising, pricing, packaging or contents was unavailable at press time.

Ogilvy & Mather, San Francisco, is Gallo's agency.

A Gallo spokesman said the company has been monitoring sales trends in the segment but has no plans to test a product. "Bartles & James is one of the names we are considering testing, but we have no firm plans at this point to even market-test," he said.

Gallo, the world's largest winery, is known more for building market share through skilled sales and marketing than for inventive new products. Longtime Gallo observers say the company often tests products internally for several months before trying them.

Rumors have swirled since early this year around Gallo's entry into the wine cooler market, with most speculation centering on a product called California Quencher. But that name was believed to be too close to another Gallo product, Boone's Farm Country Kwencher, a fruit-flavored wine.

Sizzling category

A Gallo wine cooler entry would fuel an already sizzling category. The $250 million-to-$350 million business has attracted some top U.S. wineries, including Heublein Wines, Farmington, Conn.; Wine Group, San Francisco, and, most recently, Seagram Wine Co., New York, which introduced Seagram's Cooler (AA, Oct. 25) last month.

Heublein and Seagram have products aimed at more upscale consumers, whereas category leader and pioneer California Cooler and its most successful competitors have sought a more down-to-earth positioning.

Heublein's Citronet, a clear-liquid, 4%-alcohol cooler hasn't fared well despite heavy advertising in some markets via DYR, Los Angeles, sources said.

Wine industry consultant Jon Fredrikson cited Citronet's example as reason to doubt the stylish positioning of Seagram's Cooler and Bartles & James.

About 29 million gals. of wine cooler were shipped through September, more than all the sparkling wine shipped in 1983. But lately the category has begun to reflect the seasonality of the beer and soft-drink markets. Shipments during September dipped to 3.8 million gals., down about 33% from the 1984 peak in July, he said.

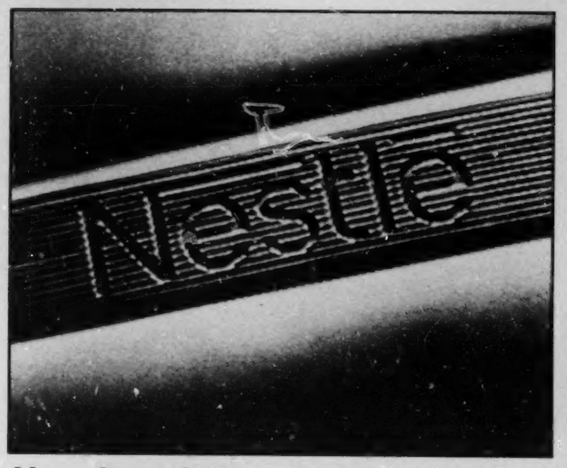
Stockton, Cal.-based California Cooler, which controls 60% of the market, hopes to maintain its awareness in consumers' minds through holiday promotions and is busy concocting what sources say is an "absolutely wild" campaign for next year with new agency Chiat/Day, San Francisco.

Tom Gibbs, California Cooler's director of marketing, maintained that Gallo's expected entry doesn't disturb him. "The category needs more awareness, and this will help," he said.

Legal action taken

Mr. Gibbs is disturbed about two competitors, however. The company recently filed suits against Joseph Victori Wines, New York, marketer of Calvin Cooler, and Loretto Winery, Pleasanton, Cal., which sells California Special Cooler.

The suits claim both companies have created products that either in name, labeling or advertising have confused consumers and retailers into believing they are the real California Cooler. The suits seek preliminary injunctions against both companies. The defendants deny the charges.#



Hot chocolate

The All-American candy bar gets a taste of the provocative in commercials Nestle Co. is testing in Eau Claire, Wis., and Albany, N.Y. (AA, Nov. 12). The spots, themed "Nestle's passion," feature throbbing music, suggestive closeups and lyrics filled with double-entendres. J. Walter Thompson USA, New York, is the agency.

Lotus Jazzing up software

By BRIAN MORAN

NEW YORK—Two of the biggest movers and shakers behind Diet Coke's soaring success have rejoined forces to market a new Lotus Development Corp. software program as a mass-appeal consumer item.

Malcolm MacDougall, who headed SSC&B's creative team for Diet Coke, and Henry Cardello, onetime marketing director for Coca-Cola USA's cola brands, are working on an introductory ad campaign that will position Lotus' new Jazz software as an indispensable tool for baby-boomers.

"We're going to put Jazz on as many lips as Diet Coke," said Mr. MacDougall, president and creative director of Hill, Holliday, Connors, Cosmopulos here, which is handling creative for the Lotus product. HHCC/Boston, Lotus' agency of record, is handling media for the campaign, expected to break in March.

Mr. MacDougall said the campaign will address what consumers have been trying to figure out for a long time: What can a computer do for me?

Jazz, introduced here Nov. 12, is an integrated package for Apple Computer's Macintosh personal computer that includes word processing, spreadsheet, database, communications and graphics applications.

Cambridge, Mass.-based Lotus and Cupertino, Cal.-based Apple are discussing joint advertising and promotion campaigns for Jazz that could far outstrip previous spending levels in the software field. Lotus, which last summer became the first software marketer to advertise on network tv, "probably" will go back on tv with Jazz, Mr. Cardello said.

Mr. Cardello, who joined Lotus in July, is confident that the Macintosh's easy-to-use design will open up new, broader markets for integrated software.

Lotus' successful 1-2-3 software, which runs on the IBM Personal Computer and compatibles, is geared mainly to data-processing and management-information systems workers at *Fortune* 1000 companies.

Because Jazz is easier to run than existing integrated programs, the product-benefit message will translate better to tv, said Mr. Cardello. Lotus' tv spots for Symphony were criticized for failing to address what the product did.

Available late in the 1985 first quarter, Jazz is expected to improve Apple's penetration in the business market, now dominated by IBM.

At $595, Jazz is priced between the two existing Lotus programs, 1-2-3 and Symphony.#

REGULAR FEATURES

ADVERTISING MARKETPLACE	31	PEOPLE PATTERNS	30
BRADY	28	PHOTO REVIEW	10
IN THE NEWS	33	REGIONAL UPDATE	33
LETTERS	5	WORDS FROM GARTNER	28
PARTING SHOT	30	WORLD NEWS WIRE	33

Vol. 55, No. 78—ADVERTISING AGE (ISSN 0001-8899) is published twice weekly except three times a week the last week in March, the second week in September and except once a week the third week in November, the third week in December, the fourth week in December at 740 Rush Street, Chicago, IL 60611. Second-class postage paid at Chicago and additional mailing offices. Send address changes to ADVERTISING AGE, Circulation Department, 740 Rush Street, Chicago, IL 60611. Microfilm copies are available from University Microfilms, 300 N. Zeeb Rd., Ann Arbor, Mich. 48103. Microfiche copies are available from Bell & Howell, Micro Photo Division, Old Mansfield Rd., Wooster, O. 44691.

$1.25 a copy, $52 a year, $95 two years. Add $99 per year for air delivery to Europe & Middle East. Add $31 for surface mail to all other foreign countries. WILLIAM STRONG, vp-circulation; ROGER DI GREGORIO, fulfillment director; HEIDI SCHULTZ, senior circulation manager. Four weeks' notice required for change of address. Address all subscription correspondence to circulation department, Advertising Age, 740 Rush St., Chicago, Ill. 60611 (312) 649-5200.

Rodale tries 'Superfit' idea

By STUART J. ELLIOTT

EMMAUS, PA.—Rodale Press will test a fitness magazine next year and has filled two new top-level positions.

The moves are in keeping with Rodale's recent turn toward a more aggressive stance in product development, advertising, marketing and promotion.

This is all "the result of some strategic initiatives the company took," Rodale president Robert Teufel said during an interview. "In order to maintain our market share, it is essential we continue our growth."

The magazine to be tested is called *Superfit*. It first appeared as a supplement to the November/December issue of Rodale's *Bicycling*, and will be aimed at "a person who would be active in any sport, who has an interest in high-level training," Mr. Teufel explained.

Some 200,000 copies of *Superfit* —dated summer, 1985—are slated to appear on newsstands nationwide next April 23. Cover price will be $2.50. Rates for ads, to be sold initially by *Bicycling's* sales staff, are $600 for a b&w page and $1,000 for a color page.

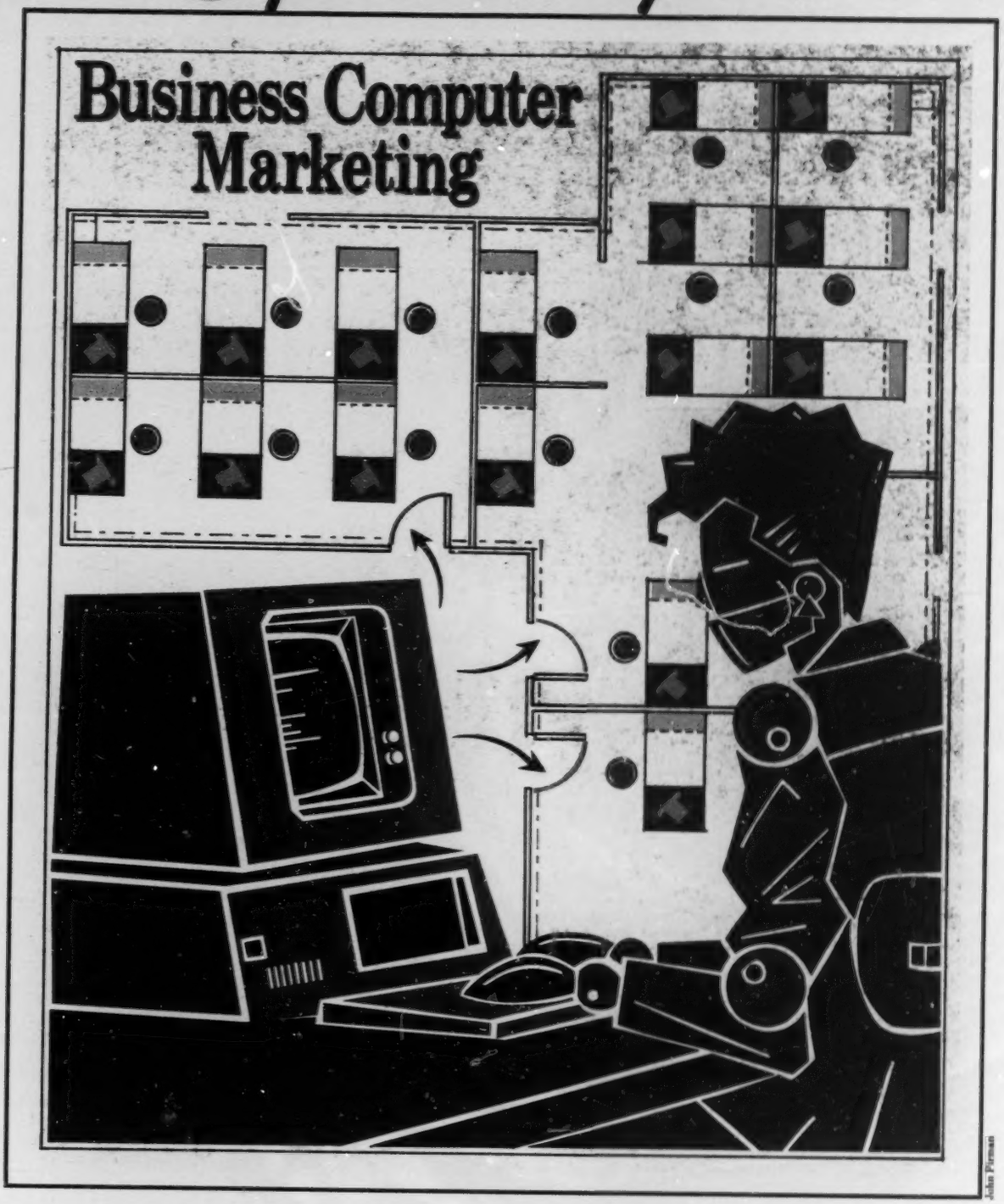
If the test is successful, *Superfit* would become a quarterly, under the aegis of *Bicycling*.

Rodale also is considering the acquisition of small sports and fitness-oriented magazines that would be taken, like *Superfit*, into the Bicycling family.

Superfit is the first magazine to

(Continued on Page 34)

Special Report



John Pirman

Designing the office of the future

By Ed Fitch

"The office of the future." If that phrase doesn't set your mind to wandering, probably nothing will. Perhaps you picture yourself sitting at a command module, barking instructions into the air with a roomful of robots heeding your every beck and call.

Well, take your boot heels off the desk, forget George Jetson and skip the "Star Wars" illusions. Except for office furniture and design enhancements, the office of tomorrow most likely will look a lot like the place you park yourself every day. It simply may be a combination of the workhorses of today's technologies—terminals and telephones.

"Two years ago, once you peeled the onion, you found that companies [interested in office automation] really wanted word processing," says J. David Lyons, vp and general manager-information systems division of Westboro, Mass.-based Data General Corp. "In the last two years, companies have been investing in decision support, data processing, business graphics. The integration of voice and data processing capabilities will come to the forefront over the next year."

The potential results of this merger are astounding. Envision the capabilities of computers compounded and streamlined, accomplishing more operational functions and making people more effective at their jobs. *This* is the office of the future.

Manufacturers already are developing the essential ingredients and formulating the proper layout for this office. "All of the pieces are being put into place, although the determination of the value and utility are still ahead," Mr. Lyons says. Networking, electronic mail, microcomputer-to-mainframe software and hardware links—these enhancements of existing technologies are refining and expanding computer applications.

The key is communications. Networking is essentially intraoffice communications. Electronic mail serves interoffice communications, and micro-mainframe links provide intercomponent communications. "Real product development is blurring the lines between the two technologies," says Don Warden, director of advanced communications technology-research and development division, NCR Corp., Dayton, O.

The road to integrate these industries has taken some interesting twists and turns; how the business arrived at this junction is debatable. Whether the movement was driven by consumer need or industrial product development "is a little like the chicken and the egg question," says Eugene Lotochinski, vp-market development, Nashville, Tenn.-based Northern Telecom.

Mr. Warden agrees, saying that both market need and industry innovation are driving the convergence of technologies. "Another factor is the regulatory and legal environment, which is changing constantly and creating a framework that encourages the blurring of distinctions. The deregulation of the phone industry is continuing to lead both industries toward competitiveness," he says.

From the suppliers' perspective, technology will continue to explode of its own accord regardless of market need, says Richard Santagati, chairman of the board and president of Nynex Business Information Systems Co., White Plains, N.Y. "The reality is that as more products are made available, the market doesn't know how to use

(Continued on Page 12)

Ed Fitch, an Ad Age associate editor, coordinated this Special Report.

Demand for electronic mail arrives early

By Lori Kesler

An exuberant public relations representative for an electronic mail company likes to tell how he nearly forgot his mother's birthday, then saved face at the last minute by sending her a birthday greeting via electronic mail.

Although electronic mail's fortunes never will hinge on cranking out birthday messages for mom, his story illustrates a valid point: Instant mail offers benefits anyone can understand.

After all, this is technology with a purpose, a procrastinator's dream come true, an efficient tool for folks who push their deadlines to the limit.

Electronic mail can give business professionals the means to communicate with hundreds of vendors, clients, distributors or sales people in one fell swoop. "Electronic mail will be the first electronic service to reach its peak by virtue of need," says Bob Smith, vp-marketing, Business Computer Network, Cardiff-by-the-Sea, Cal.

The electronic mail companies are just beginning to spread their gospel. Atari founder Nolan Bushnell once called the home computer "a tremendous solution looking for a problem." The same statement could have described electronic mail.

However, that's changing. One expert says the industry is reaching the point where market demands are outstripping technology. Customers are clamoring for services that are still on the drawing boards—a good sign that the world is ready to mail electronically.

Meanwhile, electronic mail companies are trying to figure out how to market themselves to the public. "The services are still pretty fuzzy," Mr. Smith says. "There's not a lot of benefit advertising going on." But this may be because the market still is taking shape.

A quick glance over the shoulder shows electronic mail hardly existed before last year. MCI Mail, the product of Washington-based MCI Communications Corp., perhaps the most visible and aggressive company of the lot, celebrated its first birthday in September. Rockville, Md.-based General Electric Information Systems Co., a provider of internal corporate communications systems, waited until late 1983 to invest heavily in the free-standing electronic mail market, powering itself into the fray with a series of new-product enhancements for its Quik-Comm service.

Even Western Union Corp., Upper Saddle River, N.J., whose 1938 telex machine represented the granddaddy of electronic mail, is just now starting to rev its corporate engines. Although it unveiled EasyLink two years ago, Western Union didn't promote it much until competitors pointed the way.

"Western Union has the largest share of the electronic mail market with its 1.5 million telex subscribers and 65,000 on EasyLink," Mr. Smith says, but "Western Union didn't even seem to know it was in the electronic mail business."

Audrey Mandela, senior analyst for the Yankee Group, a Boston-based market research and consulting company, says electronic mail may begin to look more like a retail industry early in 1985. "By then we'll see some real competition for MCI," she says, noting that Western Union's planned improvements for EasyLink should turn it into a more viable product in the next couple of months.

But, she says, the definition of electronic mail may get fuzzier as sending simple messages gives way to a broader range of applications, such as billing, order processing, inventory tracking, electronic banking and database information retrieval.

At the moment, a number of contenders are in the market: Along with Western Union, MCI and GEISCO, there's Email from CompuServe; Telemail from GTE; Dialcom offered by ITT; OnTyme from Tymshare, and the newest entry, RCA Mail from RCA Global Communications.

The electronic mail field has grown crowded and "the door is slowly shutting," Mr. Smith says. "The number of players probably won't grow. In fact, anyone getting in now is arriving pretty late."

The market already has claimed one fatality. The U.S. Postal Service's ill-fated electronic mail effort, E-Com, shut down this summer after losing an estimated $50 million to $100 million since its launch in January, 1982. The government is looking for a buyer to take E-Com equipment off its hands and operate it as a private enterprise.

But companies with the right stuff have plenty of opportunities. The industry's billings are expected to soar to more than $1 billion by 1990—possibly upward from that point. Experts predict an influx of some 3 million new subscribers in the next 18 months alone, most of them business customers.

J. Robert Harcharik, president of MCI Digital Information Services, estimates the electronic mail industry's 1984 billings will reach about $75 million, "which makes it a small business at the moment. But if you widen the outlook to include all kinds of urgent communications on hard copy—and we compete in those areas, too—the potential market is probably $3 billion.

"Then, if you go ahead and look at the first-class mail stream and see what's time-sensitive, the potential market size adds up to $8 billion or $9 billion today," he says. "In the future, who knows how much of our communications could convert to electronic transfer?"

Customers may look for more communications conversions because electronic mail is cheap. One company charges as little as

EasyLink from Western Union Corp. and MCI Mail from MCI Communications Corp. vie in the young electronic mail industry.

Lori Kesler is one of ADVERTISING AGE's computer-based correspondents.

Future

(Continued from Page 11)

them."

"The consumer—both the classic package goods consumer and the business professional—doesn't demand an integrated voice and data system until he absolutely has to have it," Mr. Warden says. However, it is becoming evident that the day of demand is fast approaching.

"Today, different departments within a company are using various technologies to meet the company's needs; it's a very patchwork-quilt approach," Mr. Santagati says. "The power of integration in terms of efficiency, functions and costs are not experienced." To realize these benefits, he says, most companies should integrate their systems, depending on the extent of their data processing operations.

Demand also is increasing because workers have become the most costly factor in the office automation formula. "The cost equation has shifted to where you can achieve extensive computing capabilities for a few thousand dollars," Mr. Lotochinski says. "Because the executives are the most expensive element of the system, the task is to give them a terminal to optimize their value."

To avoid duplicating efforts and to streamline the decision-making process, communication among terminal-tied executives is critical.

Because it is in corporate America's best interest to merge data processing and voice communications functions, strategic competitors serving the office automation market must have a product that does it all, Nynex's Mr. Santagati says. Customers don't want to go to different vendors, he says, so "vendors want to be able to say, 'Stick with me and I'll offer all of the products you'll ever need.'"

But just because two very technically oriented industries are converging doesn't mean research and development departments can spin out a combined product line tomorrow. "Two respected [data processing] companies, Wang and IBM, couldn't develop a voice PBX that handles voice and data communications at the same time," he says.

"Voice capabilities are not easy to develop, so these companies go out and acquire the technology from smaller vendors," Mr. Santagati says.

Because PBX manufacturing is considered more risky—evolving and being replaced at a more rapid pace—some experts say data processing companies are in the position of having to approach the telecommunications manufacturers with partnership agreements.

Mr. Lotochinski says another factor may put data processing companies in a bit of a tougher spot. "The computer industry has grown up with fault conditions—a certain amount of down time has become expected. This is not expected of communications systems. Also embedded in telecommunications systems are very high reliability computers, so we're already very involved in aspects of computerization."

For the most part, the emphasis seems to be on adding communications capabilities to data processing devices and systems. The increasingly popular local area networks, Mr. Lotochinski says, are a clear case of injecting the communications function into data processing.

It is clear that companies in both industries must understand the other's technology if they are to remain viable competitors. "It's not necessary to have a full product line addressing both tomorrow," NCR's Mr. Warden says. "But in terms of long-range planning and developing the proper system architecture, now is the time to start. Personally, I feel that

Linking the telephone and computer, as Northern Telecom has done, will be common in the office of the future.

17 cents to transmit an electronic message coast to coast. Another sends a note around the globe for 50 cents.

And the price of many services probably will continue to fall. In the heat of competition, some companies already have dropped plans for initiation fees and monthly minimums.

"Compare the costs of electronic mail with other available means of communication and you can see the impact technology is having," says Charles Staumbaugh, marketing manager, Office Communications Operations, GEISCO. "That's why everyone is so interested. The cost-savings potential is tremendous."

> **"We've been tracking the trends since 1975, and . . . the growth in this area took place faster than we expected."**
>
> *—John Naughton*
> *Western Union*

Mr. Staumbaugh says although electronic mail technology has existed for many years, it became feasible to market the services only when large numbers of people had personal computers to hook into the systems.

"It's like when the phone was invented," he says. "People could use it only if they had somebody to call. That's what the industry's been waiting for."

John Naughton, Western Union's vp-information network systems and services, agrees that electronic mail's development has been driven by "the success and ubiquity" of personal computers and word processors.

"We've been tracking the trends since 1975, and I have to say the growth in this area took place faster than we expected," he says. Support for electronic mail is coming from several places, Mr. Naughton says, including a "surprisingly strong demand from small businesses and individual users."

Mr. Naughton envisions the market developing across a wide spectrum, with "the worlds of simple messaging and more complex data communications moving together very quickly."

Most companies are carving out special niches in the market. GEISCO, expecting most of the industry growth to come from big business, is positioning itself to serve that market segment.

MCI Mail, on the other hand, targets the other end of the market with an open-ended system that will send both electronic messages and hard-copy letters. "We designed our system for small businesses—and priced it for them, too," Mr. Harcharik says, "because until we got in, electronic mail just didn't offer anything for Harry, the little guy."

With MCI Mail, Harry can use electronic mail to communicate with all his associates—system subscribers and nonsubscribers alike. MCI executives figure it won't take Harry long to realize that all-electronic mail delivery is the fastest and cheapest way to go. And sooner or later, they say they hope he'll get everyone else to join MCI.

Western Union is "going after all market segments, the small users and the large, because the network drives the business," Mr. Naughton says. "As a network gets larger, it has more value at all levels."

Although "Western Union is looking at the entire market," Ms. Mandela says, "right now they appear to be addressing the small user more than anything else." She says Western Union also is attempting to protect its huge international telex base by-

(Continued on Page 14)

Carriers travel new routes

Taking advantage of electronic mail is a bit more confusing than using the U.S. Postal Service—you don't just stick a stamp on something and send it. The following examples—covering three of the larger players—illustrate how the electronic mail market has been segmented and explain how the various services are structured.

MCI Mail

MCI Mail, launched in September, 1983, by Washington-based MCI Communications Corp., allows its 150,000 subscribers to send three to five pages of text from their own computers or word processors to other registered users for $1.

In virtually all electronic mail systems, the letter goes into an "electronic mailbox," which holds the material until the recipient can retrieve it. The company says it's developing an alert system—probably phone-based—to tell subscribers when an urgent message arrives.

MCI Mail also delivers to nonsubscribers in three ways:

- High-priority letters and messages can be transmitted and printed at one of MCI's 18 "postal sites" and delivered by Purolator Courier within two to four hours for $25. Letters can be printed on a company's letterhead if previously registered.
- MCI Overnight, priced at $6, also is delivered by Purolator.
- The MCI Letter, which costs $2, is transmitted via MCI phone lines to company postal sites. From there it is relayed to the U.S. Postal Service for next-day delivery.

MCI Volume Mail, a direct mail product, sends the same letter to hundreds or thousands of addresses.

In 1985, MCI Mail plans to focus its marketing efforts on certain specialized groups, including ad and public relations agencies, credit collection companies, professional associations and manufacturers with extensive dealer distribution networks. The company advertised heavily on tv last fall, but now prefers print ads.

EasyLink

Upper Saddle River, N.J.-based Western Union Corp.'s EasyLink, test marketed in 1982, began regular service in early 1983. It links 98,500 users who transmit 115,000 messages daily, or about 2.3 million a month. EasyLink can connect with those outside the network via Western Union telegram, Mailgram, cablegram or computer-generated letter.

A four-line message sent with high-speed equipment costs 17 cents. Starting in January, EasyLink will offer two-hour and overnight delivery service, priced at $30 to $40 and $7 to $10 respectively, through San Bruno, Cal.-based DHL Worldwide Courier Express. It recently introduced Memory Mail service for multiple mailings—customer billings, letters to stockholders, special offers.

EasyLink is testing a "mailbox alert" paging device—reportedly available early next year—that will tell the recipient a message is in the electronic mailbox. "Conversational EasyLink" also is being developed to enable two users to converse directly terminal to terminal.

EasyLink's current ad push promotes a $95 software package that provides log-on capability, disk file management and word processing functions. The company is spending $15 million in advertising this year as well as heavily promoting its software package to computer dealers, including commissions for signing up customers. On the corporate customer side, Western Union is going after vertical markets such as trucking, banking, retailing and meatpacking with direct sales efforts and industry-specific proposals.

Quik-Comm

Quik-Comm has some 600 major company clients, mostly multinational corporations, that together generate about 2 million messages a month. Company officials predict their electronic mail service will generate more than $100 million in revenues in 1987.

Developed 11 years ago for internal use at General Electric Co., Quik-Comm could not be marketed to others until a 1980 Federal Communications Commission ruling sanctioned it.

At that time, Rockville, Md.-based General Electric Information Services Co., dressed up its Quik-Comm system and began selling it to longstanding clients such as Eastman Kodak. The effort succeeded and went international.

A year ago, GEISCO formed a venture within itself, called Office Communications Operations, to move quickly to develop a free-standing electronic mail service.

Its background in data processing services led GEISCO to customize electronic mail service for large companies rather than offer a generic package. GEISCO's 3,000 sales and support representatives market directly to corporations' management information systems personnel. Quik-Comm service may include amenities such as consultation, programing and specialized training for client users.

Quik-Comm has no service equivalent to the hard-copy products from MCI and EasyLink, but it provides a range of computer-based offerings such as computer conferencing and electronic bulletin boards.

—L.K.

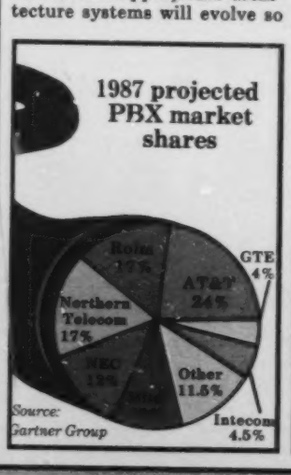
companies that aren't eventually involved in both areas will be left out in the cold."

Niche vendors probably always will have a place in this highly diversified market, however. "Companies' office automation needs are different," Mr. Santagati says, "and the strategic competitors cannot fill all of the needs."

Mr. Warden says he doubts any one company will engineer a total system through in-house efforts. "But the large umbrella company has the ability to pull together all of the components."

How chummy companies should become with those in the other industry remains largely undetermined. "The trend is to cooperate with players in the other industry," Mr. Warden says. Examples of varying levels of cooperation are rampant—from IBM's prospective purchase of Rolm Corp. to NCR's equity stake in Ztel to Digital Equipment's technology development agreement with Northern Telecom.

"Although the trend to combine efforts is there, it doesn't necessarily portend the merging of these companies," he says. "Personally, I believe the stakes are sufficiently large that one industry will not take over the other. Most companies realize they have distinct limitations of expertise. Technologically, the correct and appropriate architecture systems will evolve so neither side has to go in and do the other's job."



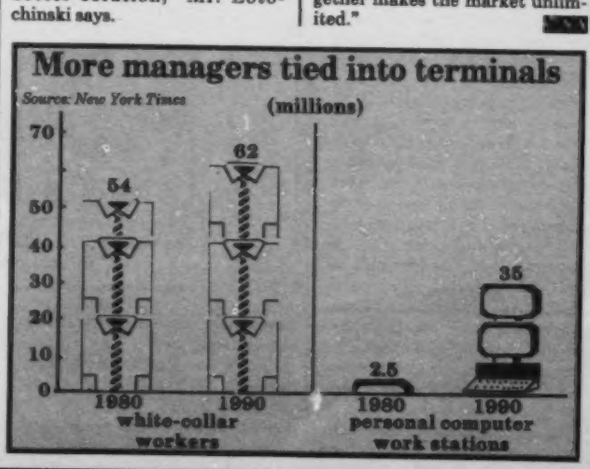
Most companies also realize that if they are to maintain market flexibility, they should not establish ties that bind. Marketing agreements, technology development ventures and cross licensing seem to be the most prevalent patterns of achieving trans-industry technology.

Companies that acquire or merge with other suppliers "are tied to whatever products their plants manufacture; they are captives of their own product lines," Mr. Santagati says. Those that establish looser agreements, he says, are captive only to market need. "We focused on marketing agreements because it is too early and not necessary at this time to acquire companies to provide supporting technologies."

At their most basic, "the agreements spring from a need for people to come together both from a technology and marketing standpoint," Data General's Mr. Lyons says. "It doesn't really matter which form a company follows as long as they satisfy the need to bring technology and marketing skills together."

Between consumer demand and the wild ride through technology's wonderland, manufacturers in both industries will come together—and quickly. "Quite simply, by getting together you can come up with a better solution," Mr. Lotochinski says.

"Once the stand-alone computer was the key to delivering on the promise of the automated office, but needs have changed," Mr. Santagati says. "When you look at where we are today and realize where we can be in the future, it's incredible. The potential to tie office functions together makes the market unlimited."



Software links big and small

By Richard Edel

It may shock International Business Machines to learn that its mainframe computers are an endangered species. One ad for a computer software company shows an IBM mainframe sandwiched between etchings of vanishing and extinct species with the tag line: "Save the Mainframe."

Of course, the ads created for Irvine, Cal.-based Mega Group by Cox & Burch Advertising, Newport Beach, are tongue-in-cheek. Nobody expects IBM's mainframes, 70% of current U.S. mainframe installations, to become museum relics. Mega Group and vendors like it would face extinction if demand were to dry up for independent software targeted at mainframe users.

But such is the ironic hyperbole that captures the attention of data processing professionals in the battle to market mainframe-to-microcomputer software, says Ned Madden, account manager at Cox & Burch. "Everybody is predicting that the mainframe is going to die because of the phenomenal success of personal computers. But Mega Group is saying, 'Why should it?' " Mr. Madden says.

That very question is dwelling in the minds of mainframe hardware and software makers as they design products for the offices of today and the future. Competing with the expanding capabilities and user friendliness of the microcomputer, they are gambling big stakes that some data processing functions will remain within the exclusive realm of the big machines. Roughly translated, these companies' task is to personalize the rather imposing mainframe.

A major hurdle is to make the mainframes more accessible and understandable to nontechnical people, says Peter J. McLaughlin, president of Chicago Soft, a Mega Group competitor. "Previous to this product type, most white-collar professionals had been swimming in reams of paper from data processing batch reports," he says. "All of a sudden, this tool comes along allowing direct access to the incredible raw power of the mainframe."

Randy Whitesides, Mega Group's vp-marketing, agrees, saying, "Before, you almost had to be a programer to use a mainframe. Our software opens the power and flexibility of a mainframe to anyone who can operate a personal computer."

For this reason, many of the dozen or so independent software companies selling mainframe-to-micro software links are basing their ad messages on the similarity of their programs to those available exclusively for personal computers.

Mega Group's own health depends on the continued survival of mainframes.

Mega Group, for example, offers MegaCalc, which resembles VisiCorp's VisiCalc, Lotus Corp.'s Lotus 1-2-3, Microsoft's MultiPlan and other popular and pervasive microcomputer spread-sheet programs. Chicago Soft offers Dynaplan, which resembles VisiCalc, Lotus 1-2-3 and Sorcim Corp.'s Supercalc.

In addition, mainframe software vendors are racing to market easy-to-use applications software for file management, electronic mail, communications, statistical analysis, word processing and other functions.

The interactive software is targeted primarily at professional-level users in the top 1,000 corporations. It also has applications in large universities and government agencies. Prices for a spread-sheet package can range from rentals of less than $1,000 a month to $20,000 for permanent license.

Because software programs are copyrighted, buyers generally purchase only the limited rights to use them. On-Line Software International, Fort Lee, N.J., offers licensing for a family of products, called Omnilink, at prices of up to $30,000.

Interactive software differs from so-called batch run programs, an example of which might include payroll check processing, in that it allows users to selectively tap database information to prepare budgets, per-

(Continued on Page 18)

WHY BUY SPOT RADIO?
Create equity in your own program

POWER ON

A DAILY RADIO FEATURE HIGHLIGHTING THE WORLD OF COMPUTERS

CONTROL:	Exclusive sponsorship available in Top 100
DATA BASE:	Men 25-49 Skewed, Managerial & Professional
BUFFER:	Guaranteed CPM on Target Audience!!!
ESCAPE:	High Spot Radio Costs With Efficient Power-On
MEMORY:	Create Equity in Your Own Program
MERGE:	Perfect for Dealer Co-Op Programs and Sales Promotion Tie-Ins

Contact: Gary Firth, Pres. 800 Wilcrest, Suite 210
Houston, Texas 77042
(713) 781-0781

Starstream

Targeting friendly users

The success of advertising software programs that link mainframes to microcomputers sometimes depends not on what is said, but who it is said to, says Peter McLaughlin, president of Chicago Soft.

"You have to do highly targeted advertising [such as direct mail] or you generate an endless stream of questions from people who couldn't use your product. You could tie up all of your resources explaining that the product is great, but it won't run on an IBM PC XT," he says.

The chief problem is that many software buyers confuse products targeted at mainframe users with those available exclusively for microcomputers.

A case in point is Chicago Soft's mainframe spread-sheet program, Dynaplan, which was designed to resemble micro-oriented products such as Lotus 1-2-3. While both programs perform essentially the same tasks, Lotus is sold to personal computer users while the much more powerful and costly Dynaplan is sold to data processing managers in *Fortune* 1,000 companies.

"There are millions of potential Lotus 1-2-3 buyers, but we would be happy if we reach a total [mainframe] user base of 1,500," Mr. McLaughlin says.

Complicating matters is the fact that at times it is difficult to determine which end users need spread sheets for microcomputers and which should have those for mainframes, says John Worthen, president of Focus Research Systems, Hartford, Conn.

The market for spread-sheet applications is growing quickly, he says, but most of that growth is in the microcomputer arena. Mr. Worthen estimates that 10% of some 12,000 domestic mainframe installations already have mainframe spread sheets—a small niche of the over-all market.

"The interesting thing is that as senior level analysts and managers become more computer literate, will this result in an increasing demand for much more sophisticated financial modeling tools?" Mr. Worthen asks. "And the droves of general management have never gotten near the stuff. What will happen if they

(Continued on Page 18)

EMBRACE THE INEVITABLE.
The Telmar Information Station for ad/marketing professionals.

As IBM's authorized Value Added Dealer for the advertising, marketing, publishing and broadcasting industry, TELMAR is now delivering THE MICRONET INFORMATION STATION: an IBM Personal Computer with customized, menu-driven software featuring 100% error-free communications and auto/start-load-go. Micronet includes integrated word processing, electronic spreadsheet, graphics, utilities and specialized ad/marketing and media planning software systems. THE MICRONET INFORMATION STATION is designed to reduce costs and improve productivity for every ad/marketing professional.

From financial analysis to media planning, plus access to Telmar's extensive on-line ad/marketing data banks and systems, and instantaneous worldwide electronic mail...for starters!

For more details, just fill in and mail the coupon below, or call 1-800-367-3655 (in N.Y., call 212-949-4640) and ask for a Micronet Representative.

IBM is a registered trademark of International Business Machines Corporation

micronet service

Authorized IBM Personal Computer Value Added Dealer

Telmar Group Inc.
90 Park Avenue,
New York City, N.Y. 10016

NAME
COMPANY PHONE
ADDRESS
CITY STATE ZIP

Software

(Continued from Page 16)

form financial modeling and analyze data.

The information may then be recorded on floppy disk or returned to the mainframe for processing and storage.

"It is perfect for one-shot, 'what if' analysis," Mr. McLaughlin says. "What effect would interest rates have on a company if they went from 10% to 18%? Or what if you changed your inventory from 30 days on hand to 15 days? These are really middle-management decisions requiring information that you would otherwise have to create by hand."

The market for such programs barely has been scratched. Total mainframe installations in the U.S. are expected to grow from about 61,000 this year to about 72,000 in 1986 with a corresponding increase in mainframe software sales over the same period of $6.3 billion to $10.5 billion, says International Data Corp., a Framingham, Mass.-based computer industry research company.

This year, U.S. corporate management information service departments will spend $100 billion, $34 billion of which will go to hardware purchases and $5 billion to software packages, according to *Fortune*. A survey by *Software News* estimates the annual revenue growth of applications software in 1984 at 28% and spread-sheet software at 37%.

But questions remain about the ultimate profitability of mainframe-to-micro products as stand-alone microcomputers continue to score significant gains in meeting office productivity needs.

Although micros will never match mainframes in terms of memory and power, the number of users who need that kind of memory and raw number crunching power may be very limited, says David Bunnell, editor and publisher of *PC World*, San Francisco.

"The fantasy is that somehow it would be useful if everyone who works at a desk is linked to the mainframe," he says. "I believe the stand-alone option and the ability to communicate with other desktop computers is far more important.

"If you're the chief financial officer," Mr. Bunnell says, "it is important that you be linked to the mainframe. But if you're a marketing manager, its value is debatable."

The importance of mainframes will remain relatively static in years to come, he says. "But that does not mean they will become less important." Others share his opinion.

"The big questions [are]: 'Is the mainframe kind of a dying thing? Are minicomputers and micros becoming a lot more popular?' " says K. Michael Frazier, project leader-financial management systems, U.S. House of Representatives Information Systems in Washington.

The House information center recently purchased a $13,000 spread-sheet program from Mega Group and another from Oxford Software, Hasbrouck Heights, N.J., he says. The software links are used by the House Office of Finance, which pays the authorized expenses of legislators and their staffs. A mainframe link was needed for cost projections, budgeting and data analysis.

The finance office had been using a minicomputer's spread-sheet, which proved slow, limited and ineffectual, Mr. Frazier says.

"There is much renewed enthusiasm [about working with the mainframe] since establishing the software link," he says. "Once we extract data the finance office needs, we remove ourselves from having to deal with it. They are free to choose the information they want at their leisure. Users can manipulate the data to their heart's content."

Mr. Frazier says the software packages take the burden off programers because they eliminate the need to write ad hoc programs to obtain information from the database. "The main advantage of the software is that it is capable of handling a great deal of information," he says. "As long as there are mainframes, I think there will always be a need for something like this."

Some software vendors worry that significant changes in demand for mainframe-to-micro software products may attract the attention and competition of suppliers of mainframe and personal computer software. VisiCorp, for example, recently teamed with Informatics General Corp. to market VisiAnswer, a program linking an IBM personal computer with an IBM mainframe database.

IBM markets a mainframe spreadsheet program called OxyCalc—suppliers say it has not had a major effect on their sales potential.

Fortunately for those mainframe software specialists who desire a low profile, the market is mostly overshadowed by the ballooning market for micro programs.

"The big bucks are definitely there for the microcomputer market, its support, service and technology," Mega Group's Mr. Whitesides says. With several micro software suppliers recording sales last year in the $100 million range, it is likely that major companies will seek that market, he says. Even if Mega Group's 1984 profits of $3 million double or triple next year, they are minuscule by comparison, he says.

If IBM decides it wants to totally control the business, "there is probably nothing we can do," he says. "I doubt very seriously that that will happen."

To explain his confidence in this assumption, Mr. Whitesides says it would take a huge investment to duplicate the research and programing time companies such as Mega Group already have expended.

A second fact is even more telling: A certain huge mainframe manufacturer just became a Mega Group customer, he says.

Micros flex sales muscles

(U.S. vendors worldwide sales, $ billion)

Software

	Mainframe/minis	Micro computers
1983	6.7	1.5
1985*	12.2	3.6
1987*	21.9	8.1
1989*	39.1	15.3

Hardware

	Mainframe/minis	Micro computers
1983	19.8	10.1
1985*	22.2	23.9
1987*	27.1	35.4
1989*	33.5	45.9

*estimate

Source: InfoCorp

HIGH-TECH GIFTS to eat and wear

Chocolate "Eat-Only" Diskettes, Diskette Neckties, The Programmer's T-Shirt, The Solid Chocolate Computer, Diskette Jewelry, and More! Free Catalogue from

Sweetware, Dept. F
516 Shelburne Rd., So. Burlington, VT 05401. Or call (802) 862-1344.

Targeting

(Continued from Page 16)

do? "It's really a confused market right now and this is a great big issue," Mr. Worthen says.

The issue has many facets, analysts say. One is the cost of mainframe applications programs.

For example, the price tag of a mainframe spread-sheet package could exceed $20,000. That compares with a less than $1,000 cost for the best micro spread sheets.

Other issues include how programs are set up on the mainframe, the amount of mainframe computing time they tie up and how to establish controls over access to sensitive database information, experts say.

At least one marketer is trying to cover all the bases in its advertising and marketing. On-Line Software, Fort Lee, N.J., is offering entry-level mainframe to micro software that can be upgraded with a second program, providing a broader range of sophisticated functions. The package is a "generic" link, meaning it can work with existing programing and stored data, an important factor.

"We provide two versions of the product to reach the segmented users in the upper end of the market and at the lower end where most of the action is," says Spencer Rutledge, director-sales and marketing for On-Line.

"Some competitive products were offering a fraction of the function at a fraction of the cost," he says. With a powerful English-language data access and retrieval system—the mainframe's traffic cop—On-Line's package efficiently manages information into and out of the mainframe. It also supports personal computer communications via built-in electronic mail, which means "the personal computer is no longer an island," he says.

At least one data processing manager from a company very near the top of the *Fortune* 500 is impressed by On-Line's approach.

"I'd like a generic program [that works with all stored data]. I don't like the idea of buying several [mainframe-to-micro] links. I'd like to restrict users to a few packages that we know how they work," Mr. Rutledge says.

The data processing manager also says the near future looks bright for mainframe applications programs. "There is a tremendous pentup demand for these automated tools. Users want them today." —*R.E.*

doubtbusters

Did you mail to the right list? Will you get a good number of quality responses? The answer to both questions is yes when you use a doubtbuster list from Hayden. Detailed information that can take the anxiety out of your next mailing is available from your list broker or by calling:

HAYDEN DIRECT MARKETING SERVICES

A Division of Hayden Publishing Co., Inc.
10 Mulholland Drive, Hasbrouck Heights, NJ 07604
(201) 393-6384

Taking the next logical step

By Kurt Hoffman

The next generation of computers will lead much more than a mundane existence of repetitive number crunching. Thus far, conventional computing has lacked any semblance of actual knowledge or logic—lots of data, but no ability to reason with or apply that data. This task has been left to humans.

Changes are in store, however, as decades of research on artificial intelligence begin to bear fruit. One example is a knowledge engineering system that has yielded startling results diagnosing illnesses written about in the "New England Journal of Medicine." These early developments only foreshadow the potential of applying knowledge and logic to vast sources of data.

A few basics—very *basic* basics—might help. "Artificial intelligence," says Rosann Stach, manager-corporate development and public relations for Teknowledge Inc. of Palo Alto, Cal., "is the subfield of computer science that is concerned with symbolic reasoning and problem solving. It's a science of concepts and techniques."

The fundamental difference between artificial intelligence's symbolic processing and basic computer operations recently was explained by Abraham Hirsch, product marketing manager at Symbolics Inc. "Data definitions and the allowable relationships between data elements and files are narrow, literal and unforgiving.... Computers can go on crunching numbers indefinitely without getting bored or tired, but without getting any smarter."

On the other hand, he says, artificial intelligence's symbolic processing "seeks to emulate the richness of human thought, however crudely, by enabling computers to manipulate arbitrarily defined objects or symbols made up of lists of associated properties.

"Symbolic processing," Mr. Hirsch says, "therefore has two advantages over numerical processing—flexibility and the ability to accommodate uncertainty and extreme complexity."

The majority of artificial intelligence research traditionally has taken place in academic institutions such as Stanford University, Massachusetts Institute of Technology and Carnegie-Mellon University. Consequently, both the pool of experts and the available resources have remained fairly limited.

The growing attraction of artificial intelligence to many corporations, as well as the Pentagon through its Defense Advanced Research Projects Agency, is causing problems for the artificial intelligence research community. Institutions and other entities involved in basic research are hard pressed to bid for the talents of the limited number of experts. Academics have expressed concern that the brain drain is leaving basic artificial intelligence research foundering.

This is happening when recent gains in hardware and software technologies are bringing some of the most basic artificial intelligence applications within grasp. The development of symbolic computing machines—which efficiently process LISP, the specialized artificial intelligence computer language that expresses information in symbolic terms—has heightened corporate awareness of the potential.

However, not many commercial applications have been developed, says Susan Thomas of Quintus, a Palo Alto, Cal., software company. "Most of the activity is going on in large corporations, and they are developing applications for their own internal use."

Because of the field's youth, many of the companies involved are devising rather esoteric technical applications such as computer-aided design and com-

(Continued on Page 22)

Kurt Hoffman, a frequent contributor to Special Report, is eagerly awaiting the application of artificial intelligence to the writing process.

Statistics for thought

Knowledge engineering sales estimates

1985	1993
$220 million	$8.5 billion

Source: International Resource and Development Corp.

TO REACH COMMODORE COMPUTER OWNERS,

GO TO THE SOURCE.

COMMODORE.

SoftPlay is dedicated to games and entertainment. Published every other month, it has about 100,000 subscribers. Another 65,000 copies per issue are sold through newsstands and bookstores.

Microcomputers is published in alternating months, and is dedicated to more serious pursuits. It has virtually the same numbers. (In fact, more than 62% of our subscribers subscribe to both.)

Our sell-through at two major bookstore chains has been between 85% and 90%. And we just reached agreement with Curtis Circulation Company for national distribution of an additional 75,000 copies per month. To start.

So if you want to reach the owners of the best-selling microcomputers in the world, give us a call. Just like our computers, our prices give you the most for your money.

TO REACH COMMODORE ADVERTISING REPRESENTATIVES CALL

MIDATLANTIC AND NEW ENGLAND
Bob D'Ambrosio
Target Media
114 E. Main Street
Bogota, NJ 07603
201/488-7900

SOUTHEAST
Warren Langer
1337 NW 84th Drive
Coral Springs, FL 33065
305/753-4124

WEST
Roger Leen
1417 Dolores Street
San Francisco, CA 94110
415/282-6000

COMMODORE PUBLICATIONS (215) 431-9100 Ext. 9676

Chips are down for semiconductor industry

By Cathy Curtis

"Every chip sells for $5. Except for those chips that sell for less than $5."

This is Gelbach's Law, named after Santa Clara, Cal.-based Intel Corp.'s senior vp-director-corporate sales, Edward Gelbach. What it doesn't explain is that those circuit-laced, fingernail-size chips, which serve as the memory and brains of electronics products, are available at movie ticket prices only a few years after they were introduced at the going rate for season subscriptions to the opera.

Cathy Curtis lives just north of Silicon Valley in Berkeley and is increasing her concentration on computer-related subjects.

The method behind this mad price cutting—some chip prices have plunged 70% within a year—is the semiconductor industry's remarkable production curve, which decrees that prices fall 20% to 30% for every doubling in production capability. Meanwhile, the number of circuits on a single chip has been doubling every year for the past two decades.

After a 1981-82 slump, the industry has been enjoying a boom. Last month at a Semiconductor Industry Assn. press conference, Irwin Federman, president of Monolithic Memories, Santa Clara, Cal., predicted "awesome growth" for certain segments of the chip market.

This year, the SIA forecasts a 48% jump in sales, to $26.3 billion, which should make the big five U.S. chip makers—Intel, Motorola, National Semiconductor Corp., Texas Instruments and Advanced Micro Devices—pleased as punch.

For the six quarters following the 1982 slump, chip makers have sold everything they could produce.

The boom collapsed during the last quarter into a mush period for sales.

Only a few months ago, a six-month wait by customers for commodity components was not uncommon. In today's supply-heavy market, it is possible to buy certain items "off the shelf." That's life in the fast lane of the semiconductor industry, in which a quarter can seem like forever.

In addition to suffering from more supply than demand, the chip industry has become increasingly capital-intensive in the past few years. The specialized machinery that manufactures the chips has grown more complex and costly. The price-tag of one line of machines that slice wafers into chips—fabricated out of half-millimeter-thick wafers of purified sand—has jumped from $20 million to $60 million in a few years. The big five chipmakers will spend an estimated $874 million for additional plants and equipment this year.

Chips are not the industry's only products. Others include electron tubes and resistors. But chips represent the leading edge in advanced semiconductor technology.

Not all chips are created equal in the razzle-dazzle department, however. At the bottom of the heap are commodity chips, notably the memory chips that store data and feed it to the microprocessor "brains." Decisions to buy these chips commonly are made by a customer's purchasing department, which is typically guided by price.

"They're like jellybeans," says Jan Rey, an analyst at Dataquest, San Jose, Cal. "They're a dime a dozen." These chips, which have a product life of about four years, represent the most vulnerable end of the business, the first area hit between the supply and demand swings that can make one quarter so different from the next.

Next in line are the microprocessors made for general applications. Every member of a microprocessor "family" offers some slight edge over its siblings. Intel's 80286 is the 16-bit successor to the 8088 and 8086; Motorola's 32-bit 68020 is the latest entry in the sophisticated 68000 family.

The ultimate success of these chips hinges on whether they are designed into industry-leading products. Intel is the blue-ribbon winner in this contest. In 1980 it came out with the 8088, selling the chip to International Business Machines for its PC. Now the 8088 has become the *de facto* industry standard, the brainpower of a host of other personal computers.

IBM, which now owns a 20% share in Intel, will be using the

Ad men talk about The Adman system™

TIMELY!
"ADMAN has taken one of our biggest problems (billing) and has now made it a pleasure. We now look forward to the end of the month."
Glenn Zagoren, *President*
Zagoren Group Inc.
Manhasset, NY

FRIENDLY!
"ADMAN is user friendly. It is simple to operate and does not intimidate the inexperienced user. Enough said . . . I love it!"
Joe Bonura, *President*
Bon Advertising Agency, Inc.
Louisville, KY

RELIABLE!
"The support has been better than with any other software we use."
Thomas Frase,
VP/Acct. Services
Kirkpatrick & Associates
Little Rock, AR

SIMPLE!
"Excellent management control with total acceptance by all the staff."
Larry Wilson, *President*
Wilson & Davis, Inc.
Indianapolis, IN

SMART!
"ADMAN is one of the smartest things I ever did in my life!"
Harry Podall, *Treasurer*
Richardson, Thomas & Bushman
Ft. Washington, PA

AFFORDABLE!
"ADMAN has assisted greatly in our being able to accurately compile information, sort data, and recoup expenses related to jobs. I have no doubt it will pay for itself in a very short period of time."
Pratt Farmer, *VP/Marketing*
Johnstown Creative Services
Atlanta, GA

μ Microbase Software Inc.

CALL (317) 241-9699
"Let me tell you why over 100 agencies have bought The Adman System in the last year."
Jerry McAfee
VP/Director of Marketing

Microbase Software Incorporated
2421 Production Drive • Suite 210 • Indianapolis, IN 46241 • (317) 241-9699

Logical

(Continued from Page 21)

puter-aided engineering for semiconductor and computer manufacturing. Beyond this, the other players tend to be large corporations that are on the leading edge of their industries, Ms. Thomas says.

"It's not really as much the type of industry as it is the type of company," she says. "Innovative companies are looking into artificial intelligence."

For example, Ford Motor Co., General Motors and Chrysler all have active artificial intelligence programs. "The automotive manufacturers have been very interested, largely because their industry is highly competitive; they have the available financial resources to assemble and equip effective research teams, and they have very heavy requirements for automating the design process," Ms. Thomas says.

Also, Japan has an aggressive cooperative research program between the government and Japanese computer marketers. One thing U.S. auto makers and other manufacturers cannot afford is to let the Japanese become even more competitive in research and design.

Most of the commercial artificial intelligence systems are being offered by small companies that apply, package and sell the research. "The people who are going to be out there with marketable products are the spinoff companies founded by or built around artificial intelligence experts who at one time were performing basic investigation for an educational institution or large corporation," Ms. Thomas says.

If someone is a real whiz "and they want some independence, chances are you'll eventually find them in a small company, possibly one they started themselves," she says. "It's a pattern that happens all the time in the computer industry." Smaller companies have attracted millions of dollars from venture capitalists in the past several years and, in some cases, have had major U.S. corporations buy into their activities.

Artificial intelligence has four basic commercial fields: Natural language processing, computer vision, computer hardware for symbolic processing and knowledge engineering. Knowledge engineering, which encompasses "expert systems," is probably the most familiar, as well as the most fantastic, to the general public.

Although knowledge engineering is barely into the first stage of its infancy, industry analysts agree that its rapid growth is certain. "Knowledge engineering is the process of achieving expert problem-solving performance from computer systems by incorporating human knowledge and experience into those systems," Teknowledge's Ms. Stach says.

According to the International

How the wafer market stacks up

	Predicted world sales ($ billion)	Per cent growth
1983	$17.8	—
1984	26.3	48
1985	32.2	22
1986	36.2	12
1987	43.0	19

Source: Semiconductor Industry Assn.

80286 in its PC AT desktop computer. Able to handle 16 million pieces of computer information, the 80286 may be the next silent star of the personal computer world.

The area of biggest growth today is in custom chips made for specialized computer applications. Some analysts think the market for microprocessor chips for graphics-oriented personal computers will be the next bonanza. Now these chips are very expensive to produce. A big demand will push the price down, but currently the computers are too expensive to attract much consumer attention.

Specialized microprocessors are sold with a package of technical support. "That's why Intel is ahead," says analyst Bill Frank at Infocorp, Cupertino, Cal. "[They have] a sell-to-the-engineer mentality."

Typically, it takes four to six weeks to develop a new microprocessor; more sophisticated varieties may take 1½ to three years. Intel's George Alexy, product market manager-high-performance microprocessors, says his company often will disclose information at an early date so customers can forecast future product designs.

"When the 8086 and 8088 were designed," he says, "we were disclosing information on the 80186 so that they could anticipate the capabilities of the next generation and plan for it in the hardware and software design."

In manufacturing a chip, the prime concern "is keeping within a common architectural family so as to be certain to preserve as much software in the market," Mr. Alexy says. Another advantage is "not having to retrain people every time a new microprocessor is developed." A chip maker generally will introduce a general purpose product to establish a software and customer base, and then add custom features in markets where the volume justifies the investment.

Chips typically are advertised within a quarter of a product's introduction, when the chip maker can deliver sample quantities but before volume production is up to speed. Sources esti-

(Continued on Page 24)

Resource & Development Corp., Norwalk, Conn., the 1985 knowledge systems market, including hardware, software and services, is estimated at $220 million. The total 1993 market is predicted to top $8.5 billion.

A knowledge engineering system consists of a vast database of information plus if-then rules that capture the practical applications of knowledge.

The end result: An enormous amount of information as well as knowledge of the practical applications of that information can be made available consistently and efficiently to a broad spectrum of people. Or in the case of the expert system, the highly specialized knowledge and experience of one person in an organization can be shared.

"An expert system is a program contained in a database that includes the knowledge and expertise of an individual or group of individuals in a specific topical area," Ms. Thomas says. "The expert system provides the nonexpert user access to that information in a relatively simple way, usually through an interactive dialog in a command language that is English or very close to English.

"The core of the artificial intelligence system is the ability to draw logical inferences between the facts, or the objects of facts, that are in the data base," she says. That process is an attempt to emulate human thought.

The real-world applications of knowledge engineering systems are mind boggling. From medical diagnosis to financial risk management decisions to automotive engine trouble shooting, the possibilities are endless. Several companies reportedly are working on expert systems for nuclear power plants that will explain and recommend responses to emergency conditions and then intelligently react.

Significant market-related trends are forthcoming, Ms. Stach says. "Many of these tools are being sold to researchers, and we expect to see sales moving more to the applications builders—the large management information systems companies and large corporations, as well as the software and computer vendors," she says. "The market will tend to evolve out of the research community." She also expects the end user market to grow.

In a few years, this type of sales activity probably will be a mere drop in the bucket as artificial intelligence research accelerates, fueled by corporate and venture dollars and the enthusiasm of expanded applications.

"The scope of the artificial intelligence field is really huge—we're talking about the next generation of software development," Ms. Thomas says. "It's not this separate little market that the general public seems to be focusing on right now. There's a lot of interest and activity in expert systems, but you're not hearing about the other 90%."

If you're selling SMALL COMPUTERS to BIG BUSINESS... you must reach all 3 groups

Before you spend all your dollars on top management and the technicians, be certain you've covered the administrators, who make their offices *work*. They can make your sale—or break it, if they're not sold on you, your products, your training support, or your follow-through and service.

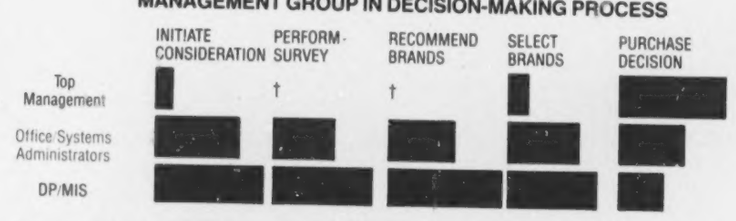
TOP MANAGEMENT ...concerned with the dollars (and sense) of a major investment in *anybody's* personal computers.

OFFICE/SYSTEMS ADMINISTRATORS ...ultimately responsible for systems integration, information management, people performance.

DP/MIS ...strong on specs, hardware capabilities and performance, software evaluation.

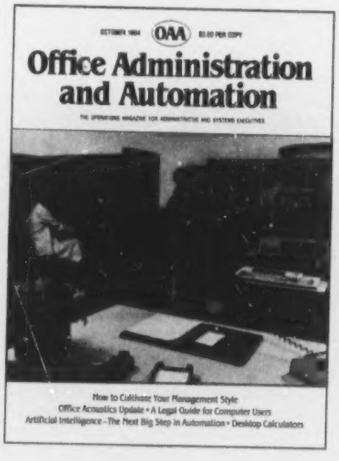
As the following graph demonstrates, office/systems administrators are deeply involved in every step of the decision-making process—working primarily with DP/MIS through brand selection, and with top management more heavily in the area of purchase decision.*

RELATIVE INVOLVEMENT OF EACH MANAGEMENT GROUP IN DECISION-MAKING PROCESS



* Three in-depth studies were conducted by the independent research firm of John T. Fosdick Associates Inc., Mamaroneck, NY, between January and July, 1983. Shown above are the relative weights of these management groups in firms of 100 + employees, according to the July phase of these studies. The complete report, showing response from over 1,000 subscribers is available on request.

† Too small to project


OAA
Office Administration and Automation
How to Cultivate Your Management Style
Office Acoustics Update • A Legal Guide for Computer Users
Artificial Intelligence - The Next Big Step in Automation • Desktop Calculators

INSURE THE SALE WITH THE ONLY 100% PAID CIRCULATION PUBLICATION REACHING OFFICE/SYSTEMS ADMINISTRATORS

More than two out of three OAA subscribers' organizations are currently installing or actively planning an "automated office." And, in 90% of those cases, the OAA subscriber is involved in making it happen! In organizations of 100+ employees, 64% of our subscribers have direct or supervisory responsibility for the selection and purchase of personal and desk top computers.

ABC ABP

Office Administration and Automation

More than 65,000 Paid Subscribers...over 300,000 monthly readers.

Geyer-McAllister Publications, Inc.
Publishers of Specialized Business Publications Since 1877
51 Madison Avenue • New York, NY 10010 • 212-689-4411
Branch Sales Offices: Midwest—312-654-3550; West Coast—213-245-1843

Industry giants cross lines

By Cara S. Trager

International Business Machines may be enjoying its leadership position in the office computer market, but it's clearly not resting on its desktop laurels.

With the entrance of American Telephone & Telegraph into the personal computer market last June, IBM may well have a monkey on its back whose potential strength may equal, if not exceed, its own. Although New York-based AT&T has miles to go in pursuing the competitive corporate computer market, let alone overtake IBM's lion's share of it, industry analysts say AT&T could emerge as a formidable competitor in the long-term.

Following the divestiture that allowed it to branch into computers, AT&T introduced six machines in March. These ranged from a superminicomputer used in telephone networks to a desktop supermicrocomputer that can support 18 terminals. In June, the company launched its personal computer, along with a local area network to tie electronic office machines into a single system, new software applications, four protocol converters and six printers.

Additionally, the telecommunications company purchased 25% of Olivetti Corp. in December, 1983, to establish a worldwide distribution channel as well as to share manufacturing expertise. The AT&T Personal Computer 6300 resulted from their joint efforts.

"AT&T is acting to get its house in order, and it's moving in several directions at once," says Ulric Weil, an analyst with Morgan Stanley in New York.

To be sure, IBM isn't standing still, either. The Armonk, N.Y.-based computer giant has been engineering aggressive acquisitions, launching new products and reducing prices. The company recently proposed to fully acquire Rolm Corp., a Santa Clara, Cal.-based telecommunications equipment producer; Big Blue currently owns 23% of Rolm.

Analysts say the Rolm acquisition would give IBM a substantial boost in the trend of combining voice and data transmission technologies. "IBM needs communications capabilities to tie hardware—the mainframes and office systems—together, and that's the reason it's doing the Rolm deal," says Ken Sobel-Feldman of the Gartner Group, a Stamford, Conn.-based computer industry consultancy.

The proposed Rolm acquisition also represents IBM's effort to strengthen its position in a field that is AT&T's bailiwick. The move puts IBM squarely in competition with AT&T, which entered the computer market after cultivating a major share of the PBX business.

"Over the long-term—about two to three years—if all goes well, AT&T will be a major competitor to IBM, and IBM is acting as if it expects it to be," Mr. Weil says.

IBM has increased its share of Intel Corp., a supplier of critical microprocessor and memory chips, to 20%. Analysts say the link gives IBM an advantage in producing mainframe computers, reducing its dependence on chip shipments from Japanese companies.

Both the Rolm and Intel ventures reflect IBM's eagerness to accelerate product development by acquiring resources and talent, rather than relying on in-house efforts.

At the same time, IBM is moving full speed ahead, spinning out products that could keep many competitors, especially a newcomer such as AT&T, at more than an arm's length. The PC AT (Advanced Technology)—reportedly twice as fast and offering three times more memory capability and four times more data storage than most business-oriented desktop computers—is perhaps the most significant introduction. Some observers say the model was named "AT" as a subtle dig at AT&T, although IBM sources deny this.

The PC AT has emerged as the new computer with which other suppliers must reckon. The relatively low-price unit—retailing at $3,995 for the base model, $5,795 for an enhanced version—generally is regarded as key to IBM's entrance into office computer networks and software. As a result, many suppliers of IBM PC-compatibles are expected to readjust their lines to market machines that impersonate the AT.

Whether AT&T will be among the vendors supplying a version of IBM's potentially hot machine remains questionable. For now, however, it seems unlikely.

"We don't need to respond to the AT—our 3B2 and PC Interface give superb price performance with a number of users involved," says Stuart Mencher, director-data systems marketing at AT&T Information Systems. "What we announced on June 26 was just the tip of the iceberg. We plan to announce new products every three to six months."

IBM is also on a nonstop course of product introductions. This year, the company introduced TopView, a software that allows the user to perform several tasks concurrently; Xenix, a multiple-user operating system for the PC AT; Cedar, a combination telephone-computer terminal, and two major business software series.

Beyond its acquisitions and new products, Big Blue is making headlines with its juggling of prices. The company, whose goods typically are priced as premium products, recently announced sharp reductions on some of its wares. For example, the price of the PC, complete with 64K memory and a 360K disk drive, was reduced from $2,105 to $1,185. Industry observers generally concur, however, that AT&T's wares remain competitively priced with IBM's.

Analysts predict that the PC AT is sure to spark price-cutting in an industry whose prices virtually are guaranteed to drop 15% to 20% annually. "IBM is generally higher priced—it's the umbrella for the market—but it still gets good margins," says Robert J. Conrads, director of McKinsey & Co., a management consulting company in Los Angeles. "The umbrella isn't as large as it used to be; only very efficient products can be produced."

Although IBM refuses to discuss its competition in the press, company sources acknowledge that some recent steps were taken in response to market conditions. "IBM announces new products and price reductions based on business decisions, and a lot of things are involved," says Michael Reisman, IBM communications specialist. "But to say IBM is doing all this in reaction to competition is wrong. That's not the only reason."

Nevertheless, such moves do serve to further strengthen IBM's already enviable position in the office computer market. As analysts see it, by moving to plug gaps in its product line, IBM stands little chance of losing its tight grip on the corporate market.

The company's distribution is vast and varied, selling wares through IBM Product Centers, as well as through authorized IBM personal computer dealers, personal computer and software dealers and value-added dealers and retailers. Additionally, IBM sales representatives pitch larger volume accounts.

Mr. Conrads also says that as companies require more technical expertise in communications and move data processing personnel into telecommunications functions, Big Blue's old clientele could be among its newest target customers.

Despite everything it has going in its favor, IBM is not necessarily a shoo-in to become the ultimate computer king. AT&T has potentially powerful

Cara S. Trager is a frequent contributor to Special Report.

IBM bites the competition

Share of office personal computer sales

	1984	1983	1982
1. IBM	40%	30%	18%
2. Tandy	11	10	11
3. Apple	9	19	22
4. Hewlett-Packard	6	6	5
4. Compaq	5	3	—
6. Wang	4	—	—
7. Zenith	3	2	3
7. DEC	3	3	—
Other	20	27	41

Source: Future Computing

Chips

(Continued from Page 23)

mate that the cost of marketing a chip is 10% to 15% of projected revenues. As Jeff Nutt, technical marketing manager at Phoenix-based Motorola Semiconductor Products Sector, says, "Most of our customers spend a lot more—they're going for the general marketplace."

The pricing of chips is "a very touchy situation," according to Dataquest's Ms. Rey. "A company will advertise the price of a chip as close to $400, but if you want to buy it, you can pay from $400 to $0. The [average selling prices] you hear fluctuate depending on circumstance," she says.

Those circumstances normally are the quantity of an order, taxes added by import-export arrangements and the position of the chip in its life cycle. For quantities of less than 1,000 units, large manufacturers defer to distributors, who traditionally account for some 20% of sales.

Motorola, Intel's major competitor, has staked out 16 of the top 30 chip markets, according to industry analysts. Other markets that the company will target include robotics, high-volume data processing and computer-aided design and manufacturing. Successful at making both memory and microprocessor chips, Motorola is known for its marketing flair.

Motorola's 68000 chip was chosen by Apple Computer for its Macintosh, and the new 68020 powerhouse is rumored to be the chip of choice for the next version of the Macintosh. "Eventually, as time goes on, [the 68000] will become your common workhorse," Mr. Nutt says. On the market for four years, it has developed the all-important software and user base that keeps a middle-age chip blooming.

At the moment, Motorola believes it can rest on its 68000 chip, which is capable of routinely executing 2.5 million instructions a second and up to 8 million a second in single bursts. However, Santa Clara-based National Semiconductor, which came out with a less complex 32-bit chip last year, has teamed with Dallas-based Texas Instruments to create a new superchip.

"It's not clear what 32 bits really brings to the party," Intel's Mr. Alexy says. More performance isn't everything from Intel's view, especially because the market is still largely unable to use such a powerful performer. "Going to 32 bits is like trying to put a truck diesel engine in your car when you need a four-speed transmission," he says.

Statistics are being tabulated on the end-user market for chips. A few years ago, the unexpected growth of the videogame market was big news; during last year's explosion of the personal computer market, "you saw a lot of eight-bit microprocessors grow a lot," Ms. Rey says.

Because some 24 semiconductor companies took a beating during the 1970s when they attempted to cash in on the digital watch craze, much larger industries are being targeted today. Although chips can be found in everything from videocassette recorders to washing machines, analysts predict the biggest growth areas in industrial, automotive and telecommunications applications.

Computer manufacturers choose a chip depending on how it conforms to industry standards, "which is very often as simple as whatever IBM is choosing," says a marketing manager at a small Silicon Valley computer company. "You must conform to existing standards [if] you want the largest potential universe of customers. At one point, though, there isn't any bandwagon—just all those choices. You're assessing market conditions two to three to four years from now."

During the big boom, personal computer manufacturers became used to queuing up for their chips, a waiting game that depended on the size of the order, the availability of ready cash and previous relations with the chip maker.

To meet customer orders and assure broad geographic distribution, chip makers routinely license other chip suppliers—often Japanese semiconducter companies—to serve as second sources. Sometimes this results in joint product development; Intel has had a 10-year technology exchange relationship with Advanced Micro Devices.

The widely publicized shakeout among customers has been thought to be one of the chief factors—along with recent record high shipments—behind the sudden plunge in chip sales. "If there's a backlog on chip orders, when it starts swinging around, if a company stays in business, it can renegotiate the contract," Infocorp's Mr. Frank says.

"But if it's in Chapter 11 there's nothing you can do."

Computer companies tend to be "overly optimistic," Mr.

allies in the fledgling regional telephone companies such as Nynex, Ameritech and Pacific Telesis.

AT&T officials acknowledge that the former subsidiaries represent a possible distribution opportunity. However, other vendors also have a shot at these independent regional companies. Rather than rely on the regionals, AT&T is determined to become a regular player in traditional computer outlets—specialty stores, value-added dealers and value-added retailers.

Already, the company has won shelf space in Sears Business System Centers, MicroAge, ComputerLand, CompuShop, Genra, The Computer Store and Amerisource. With its products in 600 stores to date—already exceeding interim projections—AT&T is optimistic that it will reach its yearend goal of 900.

Still, the giant telecommunications company has a long way to go in catching up with the rest of the market.

"AT&T is strong in the office, but it's a hell of a challenge to crack the computer market," says Stephen T. McClellan, vp, Salomon Brothers, New York. "It's easy to come up with products—as IBM is demonstrating with Rolm—but AT&T must learn how to market and sell."

David Bunnell, chairman-publisher of San Francisco-based PC World Communications, also says IBM holds the key cards—selling experience and marketing expertise—in the computer game.

"IBM has lots of advantages. It's been a competitive company and a very successful one at that. Meanwhile, AT&T has been a protected monopoly that must learn to compete in the market. If I were to bet, I would put my money on IBM. No one has ever had to give it subsidies."

To such statements, AT&T's Mr. Mencher says: "Most analysts look at us as a phone company with a phone company mentality."

On the contrary, he says, for the past five years, AT&T has been gearing up for the divestiture and the company's subsequent entrance into computer marketing.

AT&T is ready to meet the challenge, Mr. Mencher says. Company sources say its Unix operating system, along with its other products and software, will position the company as an industry power. The Unix system, designed for a multi-user environment for any size computer, is being used by more than 70 manufacturers in 150 models.

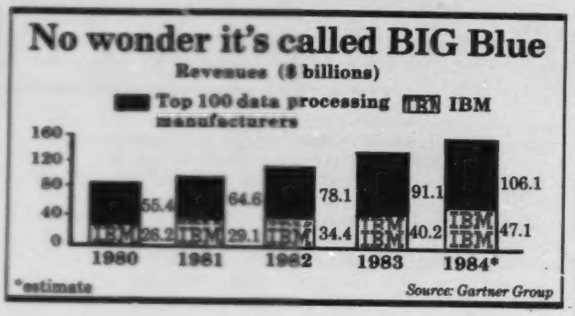
AT&T also has come to the market with PC Interface, a new software program that allows up to 16 IBM-compatible computers, including AT&T's personal computer, to share the resources of its 3B2 machine, which utilizes the Unix system.

But while many industry observers say AT&T's Unix operating system is the wave of the future, Mr. Bunnell says he thinks otherwise. He calls Unix "a joke," noting, "It's too complicated, way too awkward and confusing to implement and use."

But, by virtue of its size and telecommunications expertise, AT&T still represents a force IBM must reckon with sooner or later.

"IBM has to be concerned about communications and computers merging. In the future, there will be only one desktop appliance. Today, it's the telephone and the second one is the computer. The future will just see one device," Mr. Bunnell says. "Whether it's IBM, Apple or AT&T, the one who controls the communications network will be the one . . . on the desk."

Mr. McClellan doesn't write off AT&T either. The communications giant, he says, will enjoy a long and prosperous life in the computer business. "AT&T will be No. 10 by 1990 in computers. They have enough resources to achieve that end."

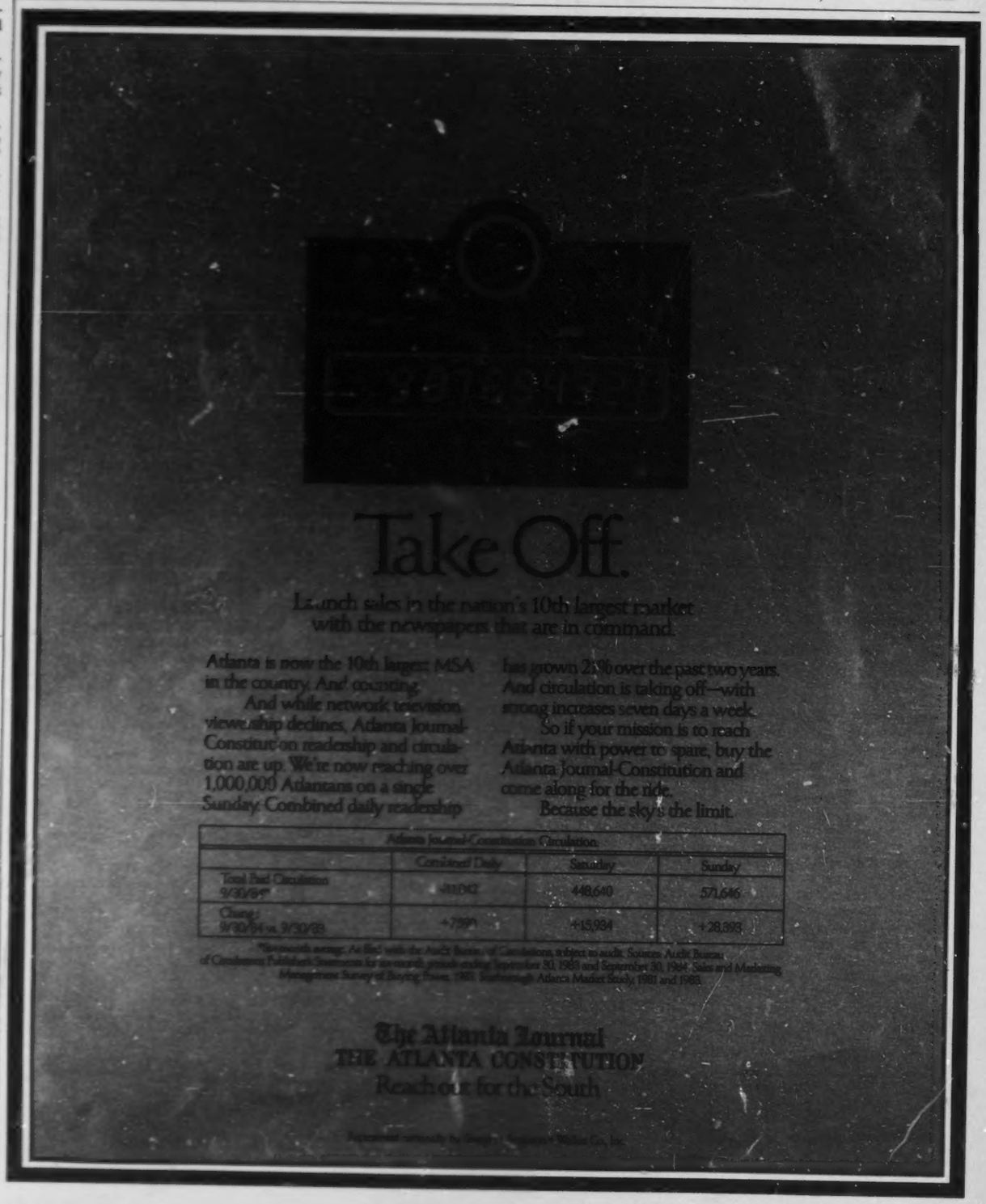


Frank says. A chip maker often ends up with more product on its scheduled shipments than its customers can accept.

Currently, the ratio of average orders to average sales has dropped to unusual lows. During the past couple of months, some computer companies have dumped their surplus chips on the "gray market."

The present slowdown may be just a hiccup in the over-all trend toward booming sales. Adam Cuhney, vp at New York-based Salomon Brothers, says, "The washout is upon us or possibly behind us," with a coming turnaround in orders that "could be as surprisingly steep" as the dramatic growth of the personal computer market a year ago.

And, as Intel president Gordon Moore said recently, "The main aspect of semiconductor technology is that it is so broadly applicable. All that it has to do is to be applicable and reasonably inexpensive, and it finds its way into every little nook and cranny."


Take Off.
Launch sales in the nation's 10th largest market
with the newspapers that are in command.
Atlanta is now the 10th largest MSA in the country. And counting.
And while network television viewership declines, Atlanta Journal-Constitution readership and circulation are up. We're now reaching over 1,000,000 Atlantans on a single Sunday. Combined daily readership has grown 2% over the past two years. And circulation is taking off—with strong increases seven days a week.
So if your mission is to reach Atlanta with power to spare, buy the Atlanta Journal-Constitution and come along for the ride.
Because the sky's the limit.
Atlanta Journal-Constitution Circulation
Combined Daily
Saturday
Sunday
Total Paid Circulation 9/30/84*
411,042
448,640
571,646
Change 9/30/84 vs. 9/30/83
+739
+15,934
+28,393
*Six-month average. As filed with the Audit Bureau of Circulations, subject to audit. Sources: Audit Bureau of Circulations Publisher's Statement for six months ending September 30, 1983 and September 30, 1984; Sales and Marketing Management Survey of Buying Power, 1983; Scarborough Atlanta Market Study, 1981 and 1983.
The Atlanta Journal
THE ATLANTA CONSTITUTION
Reach out for the South